

WV Wildlife Diversity NEWS



Bob Wise, Governor

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FALL 2002

The Year of the Dragonfly

Whenever I tell someone of my recent summer work with the Dragonfly Society of the Americas, I often receive a confused stare. "What is *that*?" folks ask incredulously. The Dragonfly Society of the Americas (DSA) is a group of dragonfly biologists and enthusiasts from all over the world and I had prepared for their annual meeting in West Virginia. Why West Virginia? More importantly, why dragonflies?

Dragonflies are more than that pesky, almost frightening, insect that occasionally lands on your canoe while fishing. They are in a group of insects called *Odonata*, which also includes the damselflies. There are approximately 435 species in North America and they come in all sizes and colors. Because Odonates are an indicator of good water quality and add to the biodiversity of a site, they help provide a measure of overall wetland health.

One species collected was the Elusive Clubtail. It was known only historically from West Virginia and is considered extirpated in Pennsylvania and Massachusetts.

The Mountain State is rich in biodiversity, and dragonflies are no exception. Many northern and southern species reach into our borders. This exciting mix, with our variety of aquatic habitats, provides a fertile natural study ground for dragonfly biologists.

The late naturalist Paul Harwood

gathered most of what we know about West Virginia dragonflies in the 1960's, 70's, and 80's. However, little recent data has been collected on dragonfly distribution and species occurrence. This is why the DSA was encouraged to come to West Virginia; forty to 70 dragonfly experts roaming the state is a quick and effective way to accurately document species.

The first leg of the meeting was held in Lewisburg on June 20th through the 22nd. As we gathered to begin our fieldtrips, I breathed a sigh of relief. Dragonfly observation is very much weather dependent and the sun was shining brightly with the forecast calling for much of the same. Our destinations included the Greenbrier, Meadow and New rivers, Anthony's Creek, Cranberry Glades, and Moncove and Sherwood lakes to name a few.

Twenty-six states, including California, Oregon, Washington, Utah, Texas, Kansas, and Iowa, plus the District of Columbia and Argentina, were represented over the weekend and a new meeting attendance record was set with 68 odenates. Saturday evening was spent listening to various presentations ranging from West Virginia's own Hassan Amjad's discussion of a naturalist's view of dragonflies, to slide shows about Odonates in Mexico, Japan and Bolivia.

Twenty-eight people ventured on to



our next destination in the Elkins area. Two more days with endless sunshine made our trips to Dolly Sods,

Canaan Valley, Shaver's Fork, Blister Swamp, Valley Bend WMA, Spruce Knob and other areas very productive. Valley Bend WMA was the surprise site of the trip with thirty-four species of dragonflies and damselflies documented!

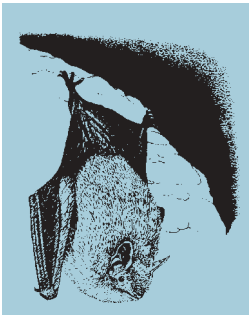
Our next destination was the Ohio River. The group was down to nine, and our next two days were spent visiting Greenbottom and Boaz swamps, and the Ohio River Islands National Wildlife Refuge. One species collected during that trip was the Elusive Clubtail. It was known only historically from West Virginia and is considered extirpated in Pennsylvania and Massachusetts. It was a great find and a satisfying way to end the 2002 DSA meeting.

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Threatened and Endangered Species Update



Bat Surveys Show Increase

During the winter of 2001/2002, 23 caves in seven counties were visited to

monitor hibernating bats. Several of these caves are Priority 3 hibernation sites for the endangered Indiana bat (less than 500 individuals). The number of Indiana bats observed showed an increase of 6.6% over the number seen in these caves during the winter 1999/2000 surveys. The state's most important bat hibernacula are scheduled to be surveyed this coming winter.

The annual summer Virginia big-eared bat maternity colony censuses were conducted in June. Nightvision equipment and infra-red lights were used to tally the number of bats exiting the caves in the evening to feed on insects, mainly moths. A total of 5,897 bats were counted at ten summer colony caves. This count is within 13 individuals of the number of bats counted in June 2001.

As part of a rare species assessment on Sugar Grove Naval Base, a spring bat mist netting session was conducted on the base. Summer mist netting projects took place on Camp Creek State Forest and Chief Cornstalk Wildlife Management Area. No rare bats were captured at any of these sites.

Although the rare small-footed bat has been thought to roost in rock outcrops, there has been little data available on the life history of this species. In June 2002, a radio telemetry project in the Seneca Rocks areas tracked two of these bats to their roost sites - in rock outcrops as expected. Because these are among our smallest bats (they weigh about as much as a nickle), biologists did not want the bats to have to carry the transmitter for more than a couple days. So, rather than use surgical adhesive to glue the transmitters on the bats' backs,

a small amount of eyelash adhesive was used. One lactating female was tracked to a vertical crack in Seneca Rocks, while a male was found roosting in a rock outcrop on the east side of North Fork Mountain. A third bat dropped its transmitter before returning to its roost, but the "downed" transmitter was recovered near a rock outcrop.

Record Number of Eagles Sighted, Peregrines Monitored



A record thirteen bald eagle nests were observed in West Virginia in 2002. Eleven of these nests were successful and fledged a total of 22 young. Two additional nests were active in the

early part of the nesting season, but neither pair was successful in producing chicks. It is likely that there was another active nest in 2002, but it was reported to the WVDNR after the nesting season. Eagles were seen in the area when the nest was visited, but no birds were in the nest. This site will have to wait until 2003 for confirmation.

Although the peregrine falcon was removed from the list of threatened and endangered species, it is still extremely rare in the southern Appalachian Mountains and monitored closely by Wildlife Diversity Program (WDP) biologists. Two nesting pairs were observed in Grant County, but only one pair was successful; a single chick was fledged.

DNR Receives Grants To Help Landowners

The WVDNR received two grants from the US Fish and Wildlife Service to help non-federal land owners deal with endangered species issues on their lands. The first grant will assist the WV

Division of Forestry with the development of a Safe Harbor Agreement for threatened and endangered species on two state forests:

Kumbrabow (West Virginia northern flying squirrel, Cheat Mountain salamander,

and running buffalo clover) and Coopers Rock (flat-spined three-toothed land snail). Studies conducted in fall 2001 and 2002 delineated potential habitat for the Cheat Mountain salamander on Kumbrabow, but surveys failed to locate this species on the Forest. The second grant will assist Snowshoe Ski Resort in gathering baseline data needed to prepare a Habitat Conservation Plan for its property. Both the West Virginia northern flying squirrel and Cheat Mountain salamander occur on resort lands.



Threatened Isopod Found In WV

A new species has been added to the list of federally threatened and endangered species found in West Virginia. The Madison Cave isopod (*Antrolana lira*), an aquatic cave invertebrate, was listed as federally threatened in 1982 and was recently discovered in a cave in Jefferson County. This species, which appears to be derived from marine ancestors, was first discovered in Madison Saltpeter Cave in Virginia in 1958.

The Madison Cave isopod can attain a length of 18 mm and is eyeless and unpigmented. This isopod lives in pockets of ground water and is restricted to the Shenandoah Valley. It is observed in caves where they intersect the groundwater table. Threats to this species include groundwater degradation resulting from urban and agricultural development.

---Craig Stihler

Rare Species at a Glance

Virginia big-eared bat

Scientific name: *Corynorhinus townsendii virginianus*

State status: This bat is rare in West Virginia and has been documented in just over 40 caves. The caves support hibernacula, maternity colonies and roosting areas for transient bats.

Global status: The Virginia big-eared bat is a federally listed endangered species.

General description: This is a moderate-sized bat with a wingspan of 12 - 13 inches. The Virginia big-eared bat is brown with buff-colored underparts and its distinctive ears are over one inch in length. Other characteristics include two prominent bumps on the nose and toe hairs which do not extend much beyond the end of the toes.

Habitat: Cold caves which remain above freezing are the preferred hibernacula for the Virginia big-eared bat. Maternity colonies are usually found in warm caves, although some colder caves are known to host maternity colonies. The bats will often congregate in small domes where heat is trapped. Virginia big-eared bats utilize old fields, hay fields and forested areas for feeding.

Total range: This particular subspecies of the Townsend's

big-eared bat occurs in the southern Appalachian Mountains: West Virginia, Virginia, Kentucky and North Carolina.

State range: In West Virginia, the Virginia big-eared bat has been documented in caves in eastern West Virginia: Grant, Hardy, Pendleton, Preston, Randolph and Tucker counties.

Threats to the species: The greatest threat to the Virginia big-eared bat is disturbance by cavers during winter hibernation. Several caves in West Virginia are closed to protect this endangered bat.

Source: WVDNR Rare Species Fact Sheet: *Corynorhinus townsendii virginianus*

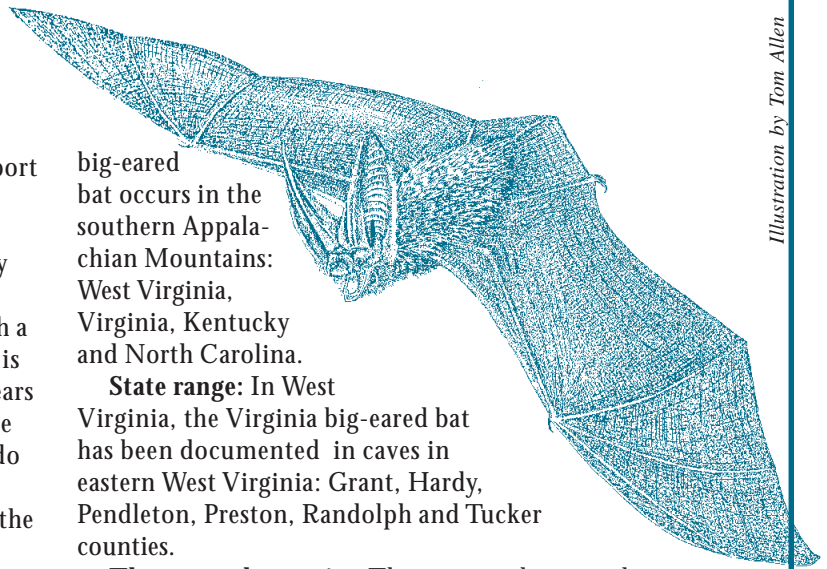


Illustration by Tom Allen

Variable sedge

Scientific name: *Carex polymorpha*

State status: Extremely rare in West Virginia, with just five occurrences in one county.

Global status: Uncommon throughout its range.

General description: Variable sedge is a grass-like plant which grows from hard, stout rhizomes and forms dense mats. The culm (stem) is 12 to 24 inches high; the blades (leaves) are shorter than the culms, and are generally ¼ inch wide. The blades are pale green in the summer, turning to yellow-brown in the fall. The flower heads are in terminal spikes, and may be seen from June through August.

Habitat: In West Virginia, variable sedge is found on sandstone at high elevations. It is often



Flora of West Virginia

associated with dwarf pine forests and heath areas.

Total range: The historical range of this species is Maine southward to Virginia and West Virginia (excluding Vermont). Recent records do not exist for Maryland, Delaware and New York.

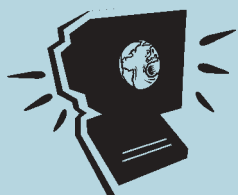
State range: This species is found on the summit of only one mountain and an associated ridge in Pendleton County.

Threats to the species: Although this species is greatly threatened throughout much of its range from sand quarries and development, it is somewhat secure in West Virginia. Populations exist on lands owned by The Nature Conservancy, but populations outside of these lands are threatened by second home development.

Best time to look: Look for variable sedge when the flower heads are present during the summer.

Sources: Gleason, H. and A. Cronquist. 1963. *Manual of Vascular Plants of Northeastern United States and Adjacent Canada*; Strausbaugh, P.D. and E.L. Core. 1970. *Flora of West Virginia*; Wildlife Diversity files.

--Barbara Sargent



Snail Mail Too Slow?

Get Your Newsletter Via Email! Contact
dhale@dnr.state.wv.us

Also check out the DNR website at www.dnr.state.wv.us

How Does Your Garden Grow? Wild!

At this time of year, a gardener's thoughts are already turning towards next spring. Flower beds are cleaned, catalogues filled with bulbs to plant pile up in the mailbox, and perhaps new gardens for wildlife are planned.

Many people create wildlife around their homes without realizing it. Bird feeders, fruiting plants and water sources attract wildlife into our yards, fulfilling their needs and providing us with hours of enjoyment. Homeowners everywhere have found that songbirds and other wildlife are pleasant to live with.

Landscaping with the habitat needs of wildlife in mind can be an enjoyable and inexpensive pastime. In fact, the National Wildlife Federation estimates that an investment of about \$200 can increase property value in time from 3 to 10%. On a \$40,000 house, that's \$1,200 - \$4,000.

The DNR's Wildlife Diversity Program has developed the West Virginia Wild Yards Program to recognize the efforts of backyard wildlife landscapers. Over the last few years the number has continued to grow to the current all-time record of 120 participants.

Approved properties are entered into the WV Wild Yards Registry. The property owner then receives a certificate and a sign that can be placed within the backyard habitat to let

everyone know that the area is part of a statewide network of WV Wild Yards.

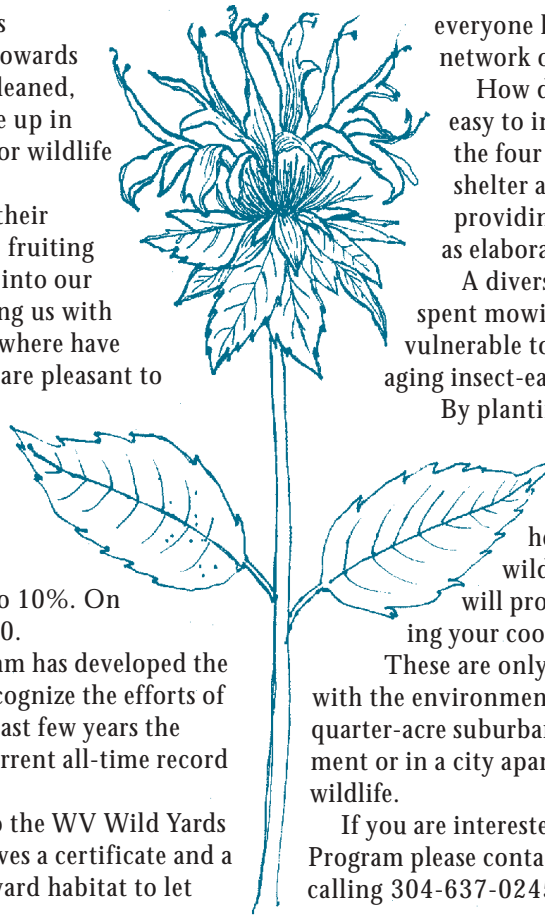
How do you attract wildlife to your yard? It's easy to improve wildlife habitat if you provide the four necessary components: food, water, shelter and space. This task can be as easy as providing feeders, birdbaths and nest boxes or as elaborate as restoring a native meadow.

A diverse yard will decrease the amount of time spent mowing and watering, as well as being less vulnerable to insect and rodent pests while encouraging insect-eating predators.

By planting evergreens on the north and west sides of your home you can block winter winds and prevent snow accumulation resulting in lower heating bills. Hardwoods planted for wildlife on the south side of your house will provide shade during the summer, decreasing your cooling bills.

These are only a few of the benefits of landscaping with the environment in mind. Whether you live on a quarter-acre suburban lot, a five-acre townhouse development or in a city apartment, you can provide habitat for wildlife.

If you are interested in participating in the WV Wildyards Program please contact the Wildlife Diversity Program by calling 304-637-0245 or log on to www.dnr.state.wv.us



Congratulations to Our Recent Wild Yards Participants

Jeanne Miller, *Lost Creek*
 Sally Hoyt, *Proctor*
 Glada Green, *Branchland*
 Clyde and Peaches Syputl, *Fayetteville*
 Jeff and Linda Rigglesman, *Keyser*
 Kelly L. George, *Charleston*
 Peggy Allman, *Bridgeport*
 Randy Perry, *Isaban*
 Bill Duty, *Delbarton*
 Linda Arlain Haney, *Salem*
 Lysanne Taylor, *Gap Mills*
 Alice Marie Somers, *West Milford*
 Daniel R. Perdue, *Madison*
 Roberta B. Owens, *Kingwood*
 Barbara Carr, *Berkeley Springs*
 David and Deborah Martz, *Hedgesville*
 William and Carol Carper Jr., *Bluefield*
 Donna S. Hatfield, *Lenore*
 Marianne and Ed Saugstad, *Sinks Grove*
 Amy Young, *Petersburg*
 Bert Muti, *Berkeley Springs*
 Ann and Al Krueger, *Beverly*
 Anita Smarr, *Madison*
 Ron and Mary Huiatt, *Beckley*
 Mr. and Mrs. Herman J. Queen, *Clarksburg*

Charlie and Sandi Snyder, *Berkeley Springs*
 Ethel L. Martin, *Alderson*
 Paulette La Benne, *Nutter Fort*
 Kevin and Debbie Rexroad, *Shinnston*
 Cecil F. Forrester, *Salem*
 Steve Roach, *Martinsburg*
 John C. Burkhart, *Weston*
 Carol Hershman, *Thornton*
 William Pelley, *Weston*
 Kelsey Cottrill, *Horner*
 Dianna Cline, *Philippi*
 Jan Montgomery, *Weston*
 Donald and Phyllis Davis, *Peterstown*
 Roberta R. Lamb, *Jane Lew*
 Allen and Roberta Nelson, *Yellow Spring*
 Bill and Donna Rice, *Enterprise*
 Lendell and Patricia Ann Simmons, *Clarksburg*
 Kristine O'Brien, *Hedgesville*
 Nancy Steffich, *Clarksburg*
 JoAnn O. Dawson, *Charleston*
 Hilda Howland, *Huntington*
 Joe and Beach Neenan, *Charleston*
 Raymond and Shannon Burner, *Keyser*



Winter Bird Count Surveys Show Need For More Participants

Every winter many West Virginians take part in the Wildlife Diversity Program's Backyard Winter Bird Count. The following is a summary of the count data from 1996/97 winter season to the 2000/01 winter season. Unfortunately the data for 2001/2002 season was not available at press time.

Participation in the count has decreased slightly over the last several years.

Number of count forms submitted include 1996 (162), 1997 (155), 1998 (155), 1999 (142), 2000 (138). All counties in the state were represented with the exception of

The top ten species for the five year period (1996-2001) were: American goldfinch, dark-eyed junco, mourning dove, house finch, Northern cardinal, tufted titmouse, European starling, blue jay, house sparrow, and black-capped chickadee.

Doddridge. However, Central and Southern West Virginia are still especially underrepresented. Impressive numbers of species were observed throughout this five-year period. Counties with the most species recorded were Barbour (62), Pendleton (61), Randolph and Hampshire (59), Berkeley and Wood (57), and Fayette (56). Thirteen counties recorded 50 or more species. A very impressive total of 111 species were recorded statewide during the last five years.

The most common backyard bird varied year to year. During 1996 and 1997 the mourning dove took this honor with 7,246 and 8,040 recorded sightings respectively. The American goldfinch took top honors during 1998 and 1999 with 12,382 and 10,077 recorded sightings. Surprisingly, in 2000 the American robin was most common with 870 recorded sightings.

The top ten species for the five year period were: American goldfinch (35,331), dark-eyed junco (34,056), mourning dove (31,360), house finch (20,841), Northern cardinal (19,770), tufted titmouse (15,230), European starling (13,658), blue jay (12,318),

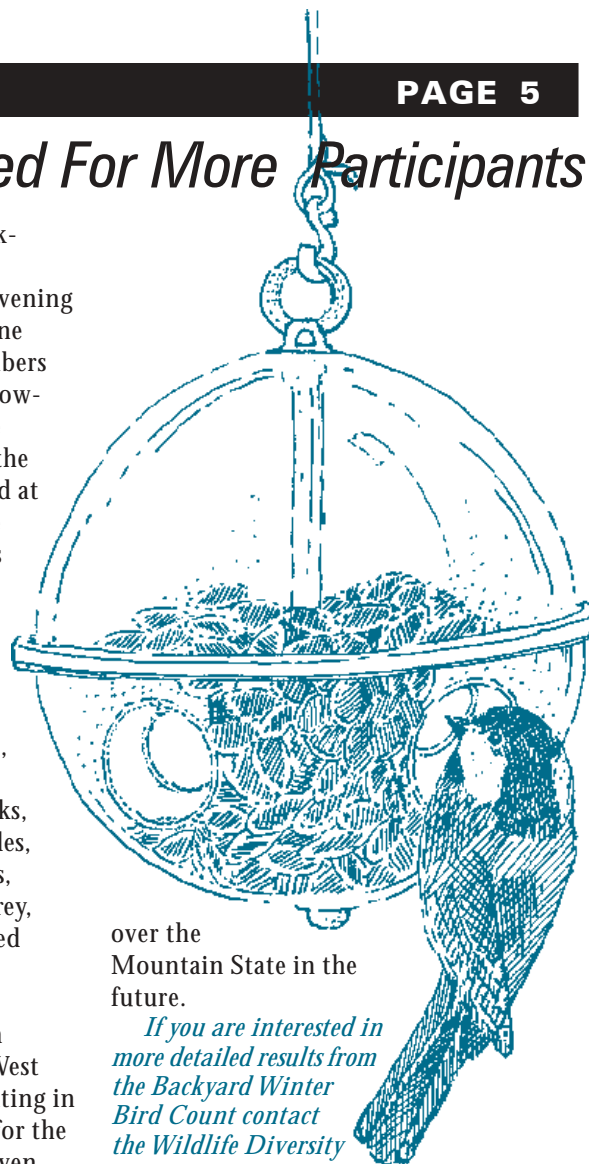
house sparrow (11,700), and black-capped chickadee (11,049).

The three "irruptive" species (evening grosbeak, common redpoll, and pine siskin) were observed in large numbers during 1996, 1997, and 1998. However, during 1999 and 2000 these species were rarely observed or in the case of the pine siskin not observed at all. During the last five years some

fortunate viewers around the state observed rusty blackbirds, Northern bobwhites, fish crows, dickcissels, golden eagles, northern goshawks, boat-tailed grackles, Northern harriers,

Northern and orchard orioles, osprey, and black and white, black-throated green and yellow warblers in their backyards.

The Wildlife Diversity Program commends the efforts that many West Virginians have put into participating in the Backyard Winter Bird Count for the last 15 years. We hope to receive even more winter bird count reports from all



over the Mountain State in the future.

If you are interested in more detailed results from the Backyard Winter Bird Count contact the Wildlife Diversity Program.

--Rob Tallman

Time For The Winter Bird Count

Time to grab a pencil and binoculars and begin the 14th annual Winter Bird Count. The tally sheets are on the following pages of this newsletter. This count gives us information on the distribution of wintering birds in West Virginia. The count will again be twelve weeks long to allow us to record some early spring arrivals.

Remember to count the highest number of each species that appears around your feeder at any **one time** during the entire weekend. For example, if you observe nine house finches at the feeder while you're having breakfast on Saturday, and seven are there during halftime of the game on Sunday, simply put down "9" for the weekend, **do not add them.**

If you get a very large number of birds--estimate their numbers. We cannot use descriptive words such as

"many" or "few."

Some birds, such as crows and robins, may feed away from your feeders. You can count birds such as these as long as you're consistent. When a species doesn't appear, leave its box blank, don't enter a "0." Please do not substitute another day if you missed a designated day; if you're not home one weekend, simply draw a line through that row.

We welcome any information on bird health, unusual sightings and other interesting happenings in your area. Thanks for the photos and notes that you've sent in the past! **Please try to return your tally sheets by May 1, 2003.**

Questions? Phone (304) 637-0245 or email: rtallman@dnr.state.wv.us. For more forms visit www.dnr.state.us

**Don't Forget!!
The Deadline For OWLS
grants is November 1.**



2002-2003 West Virginia Winter Bird Count

Note: Please record the NUMBER of birds seen in the box provided.	Temperature (F)	Rain (R) or Snow (S) in inches (Approximate amount)	Rock Dove (Pigeon)	Mourning Dove	Hairy Woodpecker	Downy Woodpecker	Yellow-bellied Sapsucker	Red-bellied Woodpecker	Northern Flicker	Pileated Woodpecker	Blue Jay	American Crow	European Starling	Brown-headed Cowbird	Red-winged Blackbird	Common Grackle	Evening Grosbeak	Purple Finch	House Finch	American Goldfinch
	High / Low °		313	316	393	394	402	409	412	405	477	488	493	495	498	511	514	517	519	529
Nov. 9-10																				
Nov. 23-24																				
Dec. 7-8																				
Dec. 21-22																				
Jan. 4-5																				
Jan. 18-19																				
Feb.1-2																				
Feb. 15-16																				
Mar. 1-2																				
Mar.15-16																				
Mar. 29-30																				
Ap. 12-13																				

Name _____ Address _____
City _____ County _____ Zip Code _____
Types of food offered _____ Number of Feeders _____
Estimated Elevation _____

Federal Funding Still Needs Support

You may remember that the Teaming With Wildlife coalition (nearly 6,000 conservation groups, businesses and sportsmen's organization) has been trying for several years to pass the Conservation & Reinvestment Act (CARA). This act would provide an adequate and long-term funding source for state wildlife conservation. CARA passed the House Resources Committee in 2001 and currently has 245 co-sponsors, but as yet remains unconsidered by the full House. It has not built any momentum in the Senate. Unfortunately, with the disappearance of budget surpluses and the Nation's focus on homeland security, CARA's future is uncertain.

However, the American Wildlife Enhancement Act passed the Senate by unanimous consent in December of 2001. This bill authorizes \$350 million for wildlife nationwide, with West Virginia's share being about \$3.3 million. Although this bill hasn't been brought up before the House, there remains support for its enactment.

In 2001, the Interior Appropriations Bill contained \$85 million for State Wildlife Grants (SWG). West Virginia's share is \$776,000. Staff is currently working on a proposal to expend these funds.

In July, the House passed their version of the Interior Appropriations bill that contains \$100 million for State

Wildlife Grants. The Senate has yet to vote on their bill, but the Senate Appropriations Committee voted for only \$60 million for SWG. The Teaming With Wildlife coalition had been asking Senators to raise this amount to match

the House appropriation of \$100 million.

If you would like to help, contact Senator Byrd and ask him to match the House Interior appropriation of \$100 million for State Wildlife Grants.

--Kathy Leo

New Wildlife Diversity Deer Plates Selling Well

Outdoors enthusiasts have been purchasing the new West Virginia wildlife license plate at a quick rate. In the first three weeks the plate went on sale nearly 700 were sold. The new plate features a white-tailed buck standing alongside a mountain stream and was created by Tom Allen, who also designed the state's rose-breasted grosbeak plate.

The wildlife license plate fees include the \$30 annual registration fee, a \$15 annual fee which supports the Wildlife Diversity Program, and a one time \$10 fee. Thus, the total cost is \$55 the first



year and \$45 in subsequent years.

The Wildlife Diversity Program supports the conservation of WV's nongame wildlife and botanical resources. Contact your local WV DMV office for details.

Dragonfly Meeting, continued from Page 1

Throughout the week, a total of 99 species were observed or collected. Eight of these had never been documented in West Virginia! Also, 171 county records were gathered. These and all future records will be added to our database of dragonfly locations and other information.

Even though the meeting is over, the

work is just beginning for accumulating dragonfly information in West Virginia. If you are interested in dragonflies, have any information to share, or would be interested in surveying for these animals, please contact me at jwykle@dnr.state.wv.us or (304) 637-0245.

--Jennifer Wykle

Who Wants To Be A Biologist?



Congratulations to our contest winner, **John Peters** of **East Bank** whose name was picked

at random from all the received correct entries. **John** correctly answered last issue's question: What is the WV State Butterfly? The answer is the Monarch Butterfly. **John** will receive a **WV Watchable Wildlife Guide**. Other correct answers were submitted by: **Ed & Maria Bray**, Buckhannon; **Susan Frame**, Elkins; **Nikki Wyatt**, Wardensville; **Carole Hyre**, Elkins; **Hallie Sims**, Ballengee; and

Koneda Devick, Point Pleasant. Thank you all for playing!

Here's this issue's question. **On September 10, 1938 the largest white oak tree in the United States was cut down in Mingo County after it was declared dead. (Interestingly, it was cut down with a ceremony.) This huge oak was estimated to be how many years old when it was cut?**

Remember, the postcards must be postmarked by **Nov. 15**. Good luck!

Official Rules:

Clearly print your answer on a postcard along with your name, address and phone number and send it to: Wildlife Diversity News newsletter, P.O. Box 67, Elkins, WV 26241, **Attention: trivia contest.** or email nbrossfregonara@dnr.state.wv.us.

Only one postcard will be accepted per household, per question.

Postcards for this issue's contest question must be postmarked by **November 15, 2002** and this issue's winners will be sent the **2003 WV Wildlife Calendar**.

Please do not call our office and ask for the answers. That would be too easy, but you can visit our website:

www.dnr.state.wv.us and search for clues.

Employees of the WV DNR and the Wildlife Diversity Program and their families are ineligible. Each winner will be chosen at random from all correct entries received by the postmarked deadline.

How To Deter Nuisance Animals

*Editor's Note: The following tips are written by Daniel Hershey in his **The Critter Control Handbook** ©Daniel Hershey, reprinted with permission of publisher Voyageur Press, 123 North Second Street, Stillwater, MN 55082 1-800-888-9653*

The first step in controlling a nuisance animal is to look for ways to keep the animal out of your garden, home, or yard. Deterrents are designed to block or discourage an animal's access to an area or an object. Common deterrents include fencing, tree wrap, chimney caps, grubicides, netting and foam sealants.

FENCING

Fencing can prevent a variety of nuisance animals from raiding a homeowner's garden. Although the initial cost can be more expensive than some other deterrents, the effects are long-lasting and usually worth the investment. Fencing alone can work for rabbits, but both woodchucks and raccoons are excellent climbers. A combination of traditional fencing and electric fencing will virtually guarantee that woodchucks and raccoons will look for an alternative food source.

Electric fences, available from most farm stores, can be expensive for larger areas but are reasonably priced for the smaller garden. These fences are very effective against raccoons, woodchucks, and rabbits. But because electric fences are often made with two strands of wire—one at 4 inches (10.16 cm) above ground and the other at 8 inches (20.32 cm) above the ground, deer are able to reach over them without getting zapped.

To deter deer, a fence needs to be at least 8 feet (2.44 m) tall. The most effective fence for deterring deer is 10 feet (3.04 m) tall; I prefer to use fences that are greater than 10 feet (3.04 m). Because it contains less wire and is cheaper to produce and purchase, hog wire is usually the fencing of choice. Fence height can be reduced by slanting

the fence at a 45 degree angle in the direction from which the deer are most likely to approach the fence.

Some orchards and farms are experimenting with plastic fencing. I am not at all impressed with the results so far. The fencing is not tall enough and the deer seem to be able to knock it down even when it is installed properly.

TREE WRAPS

To protect your favorite plantings from a variety of bark-eating animals such as deer, rabbits, beavers and voles, wrap trees and shrubs in paper, burlap, aluminum foil, or 1/4-inch (.64-cm) hardware cloth.

Each of these materials has its advantages and disadvantages. The paper material is easier and cheaper to use, while the hardware cloth lasts longer and is more durable. Always place the wrap at least 2 inches (5 cm) below the soil. Avoid mulch if voles are your problem. You should also apply the wrap high enough on the tree or shrub to protect it in deep snows.

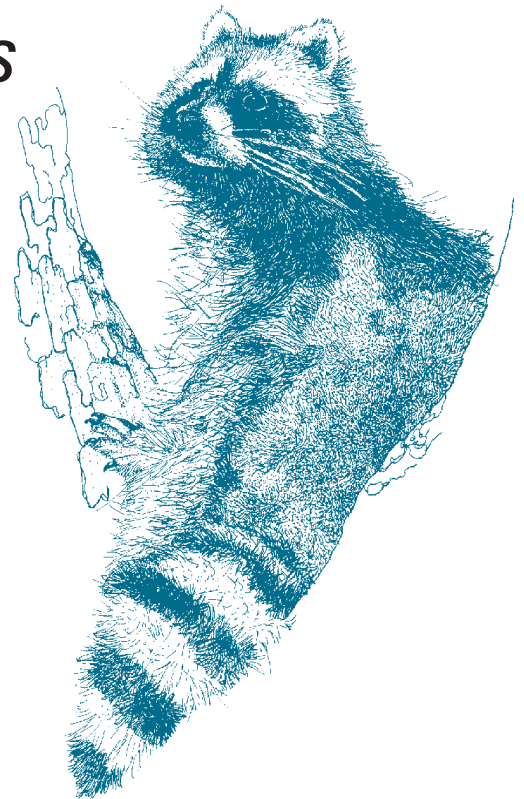
To protect shrubs from deer use hardware cloth, chicken wire, or hog wire to erect a circular fence around the plant. Take into account deep snows when calculating the appropriate height.

CHIMNEY CAPS

Animals seem to be attracted to chimneys. Raccoons, opossums, birds, and bats often have their young in them. Birds and squirrels sit on chimney rims. If the chimney is an outlet for the furnace, flue gases can temporarily asphyxiate the animal and they may fall down into it.

Most of the calls I have received about raccoons in a chimney involved a mother holing up there to have her young. In each case the chimney was not being used. The young are usually born on top of the fireplace damper.

I had one client who complained that a big male raccoon would climb up the side of her house, the first thing each morning. Once on the roof, it would walk up to the bathroom window and



look in at her as she sat on the toilet! This completely frightened the woman. After she screamed at it, it would run up on the roof and climb down the chimney, where it would spend the rest of the day. I captured this animal by fitting a chimney trap over the top of the flue tile and relocating the raccoon far enough away so that it would never bother her again. After removing the raccoon, I quickly installed a strong chimney cap. It has been my experience that once an animal's scent is there, other animals will be attracted to the chimney. With the cap installed, I had the homeowner start a big fire in the fireplace to kill any parasites or fleas and to eliminate urine and fecal odor.

Most commercial chimney caps will keep birds and squirrels from getting into the chimney. Very few are built strong enough to keep out a persistent coon or have a fine enough mesh to keep out bats. My philosophy has always been that if you are going to go through the effort of installing a chimney cap, why not install one that will keep everything out?

--Daniel Hershey

EDITORIAL:

West Virginia Needs a Museum of Natural History



West Virginia's natural history of plants, animals, geology, and habitats are wonderfully diverse. Currently there is no centralized focus to gather together information on all of these elements of our natural history for scientific and educational uses. There is no centralized effort documenting the paleontology of the state.

The Division of Natural Resources and the Division of Environmental Protection, with assistance of other state agencies, has considerable information on the state's natural history but there do not exist enough resources to properly centralize and analyze existing data. The state's colleges and universities have and continue to collect a wealth of information on all aspects of the state's natural history.

There are several small nature centers, mostly at state parks, and only two exhibits of the state's native wildlife, both of which are not readily accessible to large portions of the state residents and visitors due to their locations. There are currently no centrally located, readily accessible educational displays on most aspects of the state's natural history.

There are significant threats to the few remaining plant and animal reference collections housed at various colleges, universities and state agencies. These collections represent a century and a half of natural history documentation and cannot be replaced.

Tourism relating to natural history is a huge business nationwide. As a greater percentage of the population grows up in urban areas, they are less able to get out and see or learn about our state's natural history. Consequently, the demand for this type of education and recreation is growing.

When resources are limited it makes sense to consolidate efforts to document and understand our natural history. The education of our children and the tourism potential of natural history education and recreation would be greatly enhanced by such an effort.

West Virginia needs a centrally

located natural history museum, native plant arboretum and educational center.

Museum

Museums are effective educational tools. There are no comprehensive natural history museums in the state, consequently a museum would be an ideal addition to assist in the education of our children and to build upon our strong tourism base.

Educational displays would form the interface with the public and collections documenting the elements of the state's natural history would be maintained and available for scientific study. Exhibits could be prepared to explain many facets of our natural history including: the abiotic environment (geology, climatology, hydrology) and the biotic environment (plants, fungi, animals, terrestrial and aquatic plant and animal communities, and fossils representing past life forms that occurred in the state).

Anthropology could also be incorporated into the museum.

This museum could be a resource for not only state residents, but for the many tourists that are either passing through or are making WV their travel destination. The scientific, educational and economic benefits would be large.

The state's colleges, universities and some private citizens have natural history collections. These include: herbaria (dried pressed plant specimens - some over 100 years old), as well as mammal, insect, reptile, amphibian, spider, fossil, bird and gem and mineral collections. As the focus of research changes at our institutions of higher learning from organismal study to a molecular based focus, the natural history collections cannot receive the necessary support in terms of space, curation, and access.

These collections represent the background documentation for what is known about the state and are not reproducible. A plan to keep, build on and maintain these collections is imperative. A centrally located, endowed institution, for all to use, is a reasonable and cost-effective approach.

Arboretum

In recent years there has been an awareness of the problem of invasive exotic plant species in the landscape. The problem has become so severe that there exists a presidential executive order to raise awareness within the federal government and to guide federal activities with regard to the spread of exotics.

An arboretum that displays not only the beauty and diversity of our native flora, but also its potential for landscaping, would be extremely valuable to combat the invasive species threat. There are approximately 2,600 species of vascular plants known to occur in the state outside of cultivation. Over one-quarter of the species are exotic species and many are problematic to our natural ecosystems. Educating our citizens about this problem is critical to reversing this disturbing trend.

Scientific Publication

There is a need to create an entity within the State that can coordinate and print natural history publications. All books published, with the assistance of the WV Division of Natural Resources, in recent years have been published under an out-of-state name. Examples are: *West Virginia Birds* - Carnegie Museum of Natural History, *Fishes of West Virginia* - Academy of Natural Sciences of Philadelphia, and those published by the University of Pittsburgh Press which include; *The West Virginia Breeding Bird Atlas*, *Amphibians and Reptiles in West Virginia* and *Butterflies of West Virginia and their Caterpillars*.

The West Virginia Museum of Natural History would be an ideal entity to handle this task. All of the books mentioned are in the process of being revised and there are a number to be published during the next decade. West Virginia deserves and should have its own name on these publications.

--Brian McDonald

What do you think? Please send any comments to Editor, Wildlife Diversity News or email nbrossfregonara@dnr.state.wv.us.



NATURE SHOP



Mushrooms of West Virginia and the Central Appalachians

By William C. Roody

For both the seasoned mycologist and the novice mushroom hunter, *Mushrooms of West Virginia and the Central Appalachians* serves as a solid introduction to the mushrooms of the region. Some 400 species are described and illustrated with the author's own stunning color photographs, and many more are discussed in the text. Detailed mushroom descriptions assure confident identifications. Each species account includes remarks about edibility and extensive commentary to help distinguish similar species. Published by the University of Kentucky Press. (Available 1/03)

Softcover, \$35/ Cloth, \$60, plus tax, shipping and handling. Call 637-0245.



Butterflies of WV and Their Caterpillars

By Thomas Allen



The Butterflies of West Virginia and Their Caterpillars

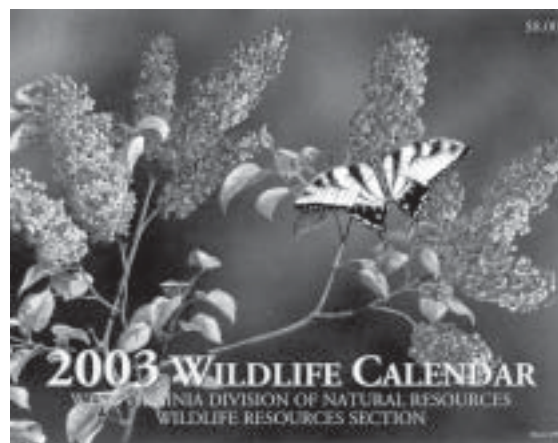
describes 128 species of butterflies found in the state, along with their caterpillars and pupae. Each species account provides a description and information on distribution, habitat, life history, nectar sources, and larval host plants. Butterflies, their caterpillars and pupae are featured in hundreds of color illustrations, as well as detailed drawings and maps.

Softcover, \$22, plus tax, shipping and handling. Call 637-0245.

West Virginia Wildlife 2003 Calendar

The annual Wildlife Calendar published by the WV DNR features award-winning full-color artwork of the Mountain State's rich natural heritage. There are also feature stories about the DNR's programs as well as informative hunting, fishing and conservation information. It makes a perfect Christmas present!

\$8 plus tax, shipping and handling. Call 637-0245.



West Virginia Wildlife Viewing Guide

by Mark Damian Duda

This book describes where, when and how to view wildlife at 63 different sites throughout the state. Each description includes details of which species one would likely see, the best time of year to encounter them and the facilities available at each site.

The book also offers tips on how to best watch wildlife, in addition to maps and color photos of many of the state's wildlife species.

Cost: \$8, plus tax, shipping and handling. Call 637-0245.

Kids Crafts



Leaf Castings

Now that nature has turned on her spectacular fall color show, here is a way you can permanently capture some of the colors and shapes the leaves of autumn have to offer.

Material needed:

Modeling clay (the kind that will harden in a few days)

Rolling pin or wooden dowel (round pencils will work)

Your favorite fall leaves

Paints for painting the clay

Paintbrushes

Take some modeling clay and roll it with the rolling pin or dowel until about a quarter of an inch thick and about the size of your favorite fall leaf. Next carefully place your leaf on top of the flattened clay and roll it on to the clay using the rolling pin or pencil. Remove the leaf and you'll have an exact impression of that leaf. If you want you can remove the excess clay around the edge of the leaf. If you want to hang this casting put a pencil size hole through the top of the leaf. Let the clay dry for a few days until hardened. If you wish, you can paint the clay leaf impression and try to match all the colors of fall on the leaf.

Hang small leaf castings on string along with others to make a beautiful mobile. Try this with a variety of tree leaves and colors to capture your own fall leaves.

--Jim Fregonara

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